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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,118	07/09/2003	Vernon R. Brethour	ALER1560-1	2196

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EXAMINER	
VLAHOS, SOPHIA	

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2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,118	BRETHOUR ET AL.	
	Examiner	Art Unit	
	SOPHIA VLAHOS	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,18,25-28 and 44-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18,25-27 and 44-47* is/are allowed.

6)☒ Claim(s) *1,28,48,49,52 and 53* is/are rejected.

7)☒ Claim(s) *50,51,54 and 55* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The rejection of claims 1, 18, 25-28, 44-56 under 35 U.S.C. 102(e) as being anticipated by Pendergrass et. al., (U.S. 6,937,639) is withdrawn in view of the Declaration under 37 C.F.R. 1.132 by Marcus Pendergrass.

However, upon further consideration, a new ground(s) of rejection is made in view of Roberts (U.S. 7,280,615).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 48-49, 52-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Roberts (U.S. 7,280,615).

With respect to claim 48, Roberts discloses: a radio transmitter (Fig. 15B, see transmitter block); and a radio receiver (Fig. 15B, receiver block), said radio transmitter and said radio receiver employing a communications signal (column 1, lines 44-48, see that inventions relates to UWB and see column 21, lines 49-58) having a code length, said code length comprising a plurality of chips (column 21, lines 49-61, the size (number of pulses) of each code word corresponds to the code length, Fig.12 use five

pulses for the code) wherein each chip of said plurality of chips is one of a non-zero value and a zero value (see ternary values of (1,0,-1)), wherein said non-zero value is one of a positive value and a negative value and wherein said positive value and said negative value correspond to an amplitude of an impulse (see pulses (impulses) as shown in Fig.12A and column 2, lines 34-38, impulses have wide bandwidth) and wherein said chips are arrayed such that there is a plurality of zero values within said plurality of chips (column 21, lines 49-51, zeros are used for creating a codeword i.e. there is a plurality of zeros for a plurality of codewords), at least one said positive value and at least one said negative value is arrayed in accordance with a pattern (the desired transmitted pattern, see column 25, lines 6-10 look-up table entries) and one or more said non-zero values is arrayed in accordance with a ruler (column 28, lines 58-67, column 29, lines 1-7, table 3, column 30, lines 66-67, column 31, lines 1-3, see orthogonal code word sets); wherein said ruler is substantially orthogonal to all time-shifted versions of said ruler (column 28, lines 58-67, column 31, lines 66-67, column 31, lines 1-3); and wherein the radio transmitter is operable to employ the communications signal to generate and transmit a transmission signal (Fig. 15B, column 24, lines 35-37).

With respect to claim 49, Roberts et. al., disclose: wherein said pattern is selected from a family of patterns (see data stream (pattern) from look-up table used for transmission, column 25 lines 6-10).

With respect to claim 52, Roberts discloses: a radio transmitter (Fig. 15B, see transmitter block); and a radio receiver (Fig. 15B, receiver block); said radio transmitter and said radio receiver employing a communications signal having a code length (column 1, lines 44-48, see that inventions relates to UWB and see column 21, lines 49-58), said code length comprising a plurality of chips (column 21, lines 49-61, the size (number of pulses) of each code word corresponds to the code length, Fig.12 use five pulses for the code), wherein each chip of said plurality of chips is one of a non-zero value and a zero value, wherein said non-zero value is one of a positive value and a negative value (see ternary values of (1,0,-1)), and wherein said positive value and said negative value correspond to an amplitude of an impulse (see pulses (impulses) as shown in Fig.12A and column 2, lines 34-38, impulses have wide bandwidth) and wherein said chips are arrayed such that there is a plurality of zero values within said plurality of chips (column 21, lines 49-51, zeros are used for creating a codeword i.e. there is a plurality of zeros for a plurality of codewords) and one or more said non-zero values is arrayed in accordance with a ruler (column 28, lines 58-67, column 29, lines 1-7, table 3, column 30, lines 66-67, column 31, lines 1-3, see orthogonal code word sets), , wherein said ruler belongs to a family of rulers (see for example table 3 on column 28) wherein any ruler within said family of rulers is substantially orthogonal to all time-shifted versions of any other ruler within said family of rulers (property of orthogonal code words see also column 28, lines 58-67, column 31, lines 66-67, column 31, lines 1-3) and wherein said step of arraying said plurality of chips further comprises the step of arraying at least one said positive value and at least one said negative value

in accordance with a pattern (see column 25, lines 6-10 look-up table entries); and wherein the radio transmitter is operable to employ the communications signal to generate and transmit a transmission signal (Fig. 15B, column 24, lines 35-37)

With respect to claim 53, Roberts discloses: wherein said pattern is selected from a family of patterns (see data stream (pattern) from look-up table used for transmission, column 25 lines 6-10).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (U.S. 7,280,615) in view of Khaleghi et. al. (U.S. 6;618,430)

With respect to claim 1, Roberts discloses: selecting a code length (column 21, lines 49-61, the size (number of pulses) of each code word corresponds to the code length, Fig.12 use five pulses for the code), said code length comprising a plurality of chips (column 21, lines 49-61 the ternary pulses correspond to the chips), wherein each chip of said plurality of chips is one of a nonzero value and a zero value (column 21, lines 49-53, see (1,0,-1) values) wherein said non-zero value is one of a positive value

and a negative value and wherein said positive value and said negative value correspond to an amplitude of an impulse (column 20, lines 1-7, UWB chips have amplitudes of an impulse (see also Fig. 12A)) arraying said plurality of chips such that there is a plurality of said zero values within said plurality of chips (column 21, lines 49-51, zeros are used for creating a codeword i.e. there is a plurality of zeros for a plurality of codewords) and one or more said non-zero values is arrayed in accordance with a ruler (column 28, lines 58-67, orthogonal code words), wherein said ruler is substantially orthogonal to time-shifted versions of said ruler (column 29, lines 1-7, table 3 as an example, and previously mentioned ternary code words (1,0.-1) see also column 30, lines 66-67, column 31, lines 1-3); using the arrayed chips to generate a signal (Fig. 15B, UWB transmitter that uses ternary code words, column 24, lines 35-37); and transmitting the generated signal (Fig 15B, includes transmit antenna 1545 for transmitting the UWB signals comprising ternary codes) .

Roberts does not expressly teach: and wherein said chips are arrayed such that no two of said non-zero values are adjacent;

In the same field of endeavor (wireless communications) Khalegi et. al., disclose: wherein said chips are arrayed such that no two of said non-zero values are adjacent (Fig. 3A, see spacing between non-aero chips, column 4, lines 62-68, column 5, lines 1-7).

At the time of the invention, it would have been obvious to a person of ordinary skillin the art to modify Roberts based on the teachings of Khaleghi et. al., so that said chips are arrayed such that no two of said non-zero values are adjacent, to make the

code words resistant to delays caused by multipath (Khaleghi column 4, lines 51-61, see also column 2, lines 4-14).

With respect to claim 28, apparatus claim 28 is rejected based on a rationale similar to the one used to reject method claim 1 above.

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of the record fails to teach or suggest alone or in combination: A method for generating a set of communication signal sequences comprising the steps of: arraying said chips such that at least one said positive value and at least one said negative value is placed in accordance with a ruler, said ruler being substantially orthogonal to all time-shifted versions of said ruler and belonging to a family of rulers wherein each ruler within said family is substantially orthogonal to each other ruler within said family of rulers, arraying said chips such that said at least one positive value and said at least one negative value are placed in accordance with a pattern, said pattern being from a family of binary patterns wherein each pattern within said family of binary patterns is substantially orthogonal to substantially all time-shifted versions of each other pattern within said family of binary patterns; as recited in claim 18 and in combination with other steps of the claim.

Claims 18, 25-27 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A method of generating communication signals comprising the steps of: arraying said plurality of chips such that there is a plurality of said zero values within said plurality of chips and one or more said non-zero values is arrayed in accordance with a ruler, wherein said ruler is substantially orthogonal to all time-shifted versions of said ruler; arraying at least one said positive value and at least one said negative value in accordance with a pattern, wherein said pattern is selected from a family of patterns, wherein any pattern within said family of patterns is substantially orthogonal to substantially all time- shifted versions of any other pattern within said family of patterns; as recited in claim 44 and in combination with other steps of the claim.

Claims 44-45 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A method of generating communication signals comprising the steps of:
arraying said plurality of chips wherein: there is a plurality of said zero values within said plurality of chips and one or more said non-zero values is arrayed in accordance with a ruler, wherein said ruler belongs to a family of rulers wherein any ruler within said family of rulers is substantially orthogonal to all time-shifted versions of any other ruler within said family of rulers; at least one said positive value and at least one said negative value are in accordance with a pattern, wherein said pattern is selected from a family of

patterns and wherein said family of patterns is such that any pattern within said family of patterns is substantially orthogonal to substantially all time-shifted versions of any other pattern within said family of patterns; as recited in claim 46 and in combination with other steps of the claim.

Claims 46-47 are allowed.

7. Claim 50-51, 54-55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is 571 272 5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SV
10/31/2007

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SUPERVISORY PATENT EXAMINER